F·A·A·M facility for airborne atmospheric measurements

FLIGHT FOLDER

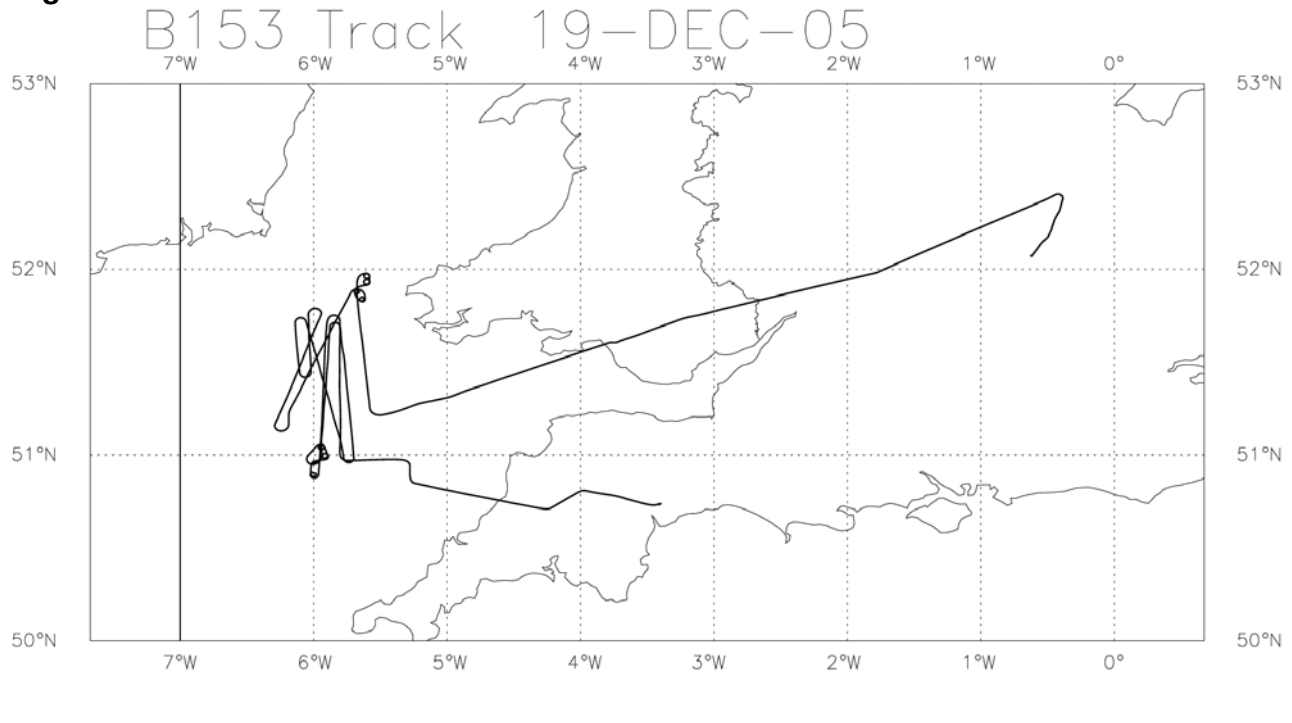
Flight No.:	B153
Date:	19 Dec 2005
Take Off	11:57:36
Landing:	15:25:16
Flight Time	3h27 40s

Campaign: SWS / sonde

Operating Area: SW approaches / Bristol Channel

POB	Position	Name	Institute
1	Captain	Alan Roberts	Directflight
2	Co-pilot	Steve Ball	FAAM
3	CCM	Sue Angold	Directflight
4	Mission Scientist	Clare Lee	Met Office
5	Flight Manger	Jim Crawford	FAAM
6	Cloud physics	Martyn Pickering	Met Office
7	Dropsondes	Steve Devereau	FAAM
8	MARSS/DEIMOS	Dave Pollard	Met Office
9	Dropsondes u/t	Paul James	FAAM
10	SWS	Ian Rule	Met Office
11	MARSS/DEIMOS u/t	James Bowles	Met Office
12	CPI	Hazel Jones	Manchester University
13	Ground Eng	Mark Lancashire	Avalon
14			
15			
16			
17			
18			
19			

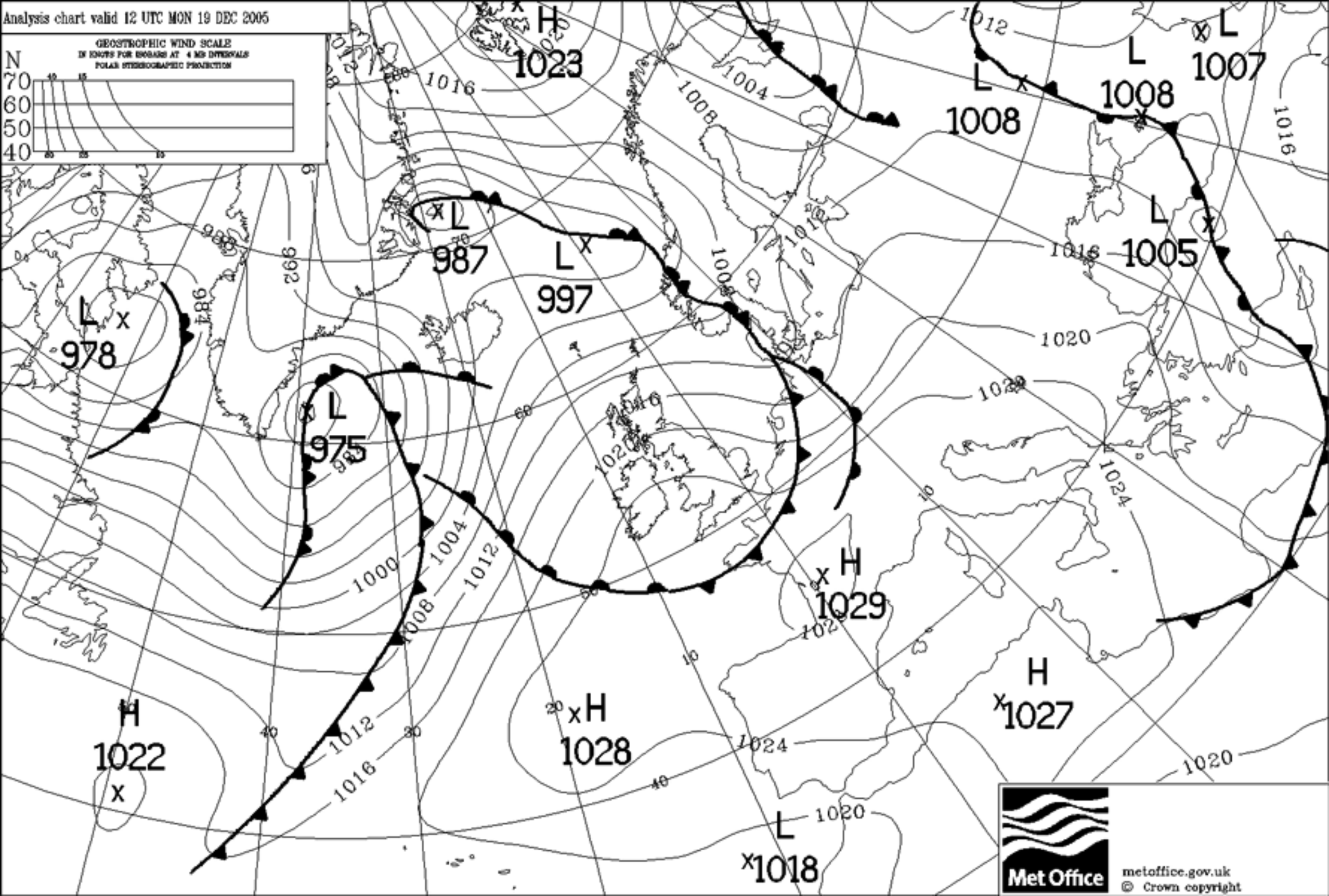
Flight Track:



FLIGHT SUMMARY

Flight No B153
Date: 19 dec 2005
Project: SWS test
Location: SW approaches

Start Time	End Time	Event	Height (s)	Hdg	Comments
112302		INU	-.25 kft	242	to nav
112337		INU	-.24 kft	242	50' 43.93N 003' 24.81 W
112422		GPS	-.24 kft	242	50' 43.93N 003' 24.81
115736		T/O	0.40 kft	263	Exeter
115510		asp	6.0 kft	285	open
120523		video	7.0 kft	281	#1 dfc, #2 ufc starte
120756		nev	7.0 kft	283	zeros
121659	122700	Run 1.1	7.0 kft	002	
121838		bbr	7.0 kft	359	retract
122718		Heimann	7.0 kft	328	cal
122733		Nev	7.0 kft	295	zero
122859	123900	Run 1.2	7.0 kft	185	
124210	124317	Orbit 1	7.0 kft	326	340R
124401	124502	Orbit 2	7.1 - 7.0 kft	027	070R
124556	124702	Orbit 3	7.1 - 7.0 kft	054	050L
124750	124854	Orbit 4	7.2 - 7.0 kft	315	280L
124954		nev	7.0 kft	217	zero
125028		bbr	7.0 kft	177	extend
125238	130658	Profile 1	7.0 - -.31 kft	359	50'
125447		rod	5.1 kft	004	500'/min
130333		interrupt P1	0.72 kft	003	
130522		resume P1	0.71 kft	178	1000'
130708	131707	Run 2.1	-.26 - -.25 kft	172	100'
130939		video	-.25 kft	175	#2 end #4 start ufc
131914	132915	Run 2.2	-.26 - -.24 kft	353	100'
132915	134401	Profile 2	-.24 - 7.0 kft	345	
133001		bbr	0.22 kft	346	extend
133152		interrupt profile 2	1.2 kft	345	1500'
133306		video	1.2 kft	190	#1 end, #3 start dfc
133319		resume P2	1.2 kft	178	1500
133749		interrupt P2	3.5 kft	176	fl35
133920		resume P2	3.5 kft	358	fl 35
134135		cloud top	4.9 kft	356	fl 47
134149		roc	5.0 kft	356	to 1000'/min
134449		bbr	7.0 kft	080	retract
134559	135600	Run 3.1	7.0 kft	199	fl 70
135858	140859	Run 3.2	7.0 kft	022	
141046	141144	Orbit 5	7.1 - 7.0 kft	220	260R
142022		sws	9.9 kft	177	end sws science
142054		fm pc	11.1 kft	176	crash & reboot
141240	141338	Orbit 6	13.0 - 13.1 kft	176	020R
142621		sonde 1	15.0 kft	175	video#4 to rfc
142715		sonde 2	15.0 kft	175	
143109		rfc	12.4 kft	069	contrail
141434	141538	orbit 7	10.0 kft	067	060L
141614	141713	Orbit 8	10.0 kft	067	310L
144824		!	10.0 kft	065	
152516		Land	0.02 kft	212	Cranfield
153128		gps	0.02 kft	308	52' 04.36N 000' 37.48W
153242		INU	0.02 kft	308	52' 03.30N 000' 38.68


Analysis chart valid 12 UTC MON 19 DEC 2005
GEOSTROPHIC WIND SCALE
IN KNOTS FOR 850MB AT 4 MB INTERVALS
POLAR STEREOGRAPHIC PROJECTION
N
70
60
50
40
H 1023
L 1008
L 1007
L 1008
L 1005
L 987
L 997
L 978
L 975
H 1029
H 1027
H 1022
H 1028
L 1018
1016
1004
1008
1012
1020
1024
1028
992
984
1000
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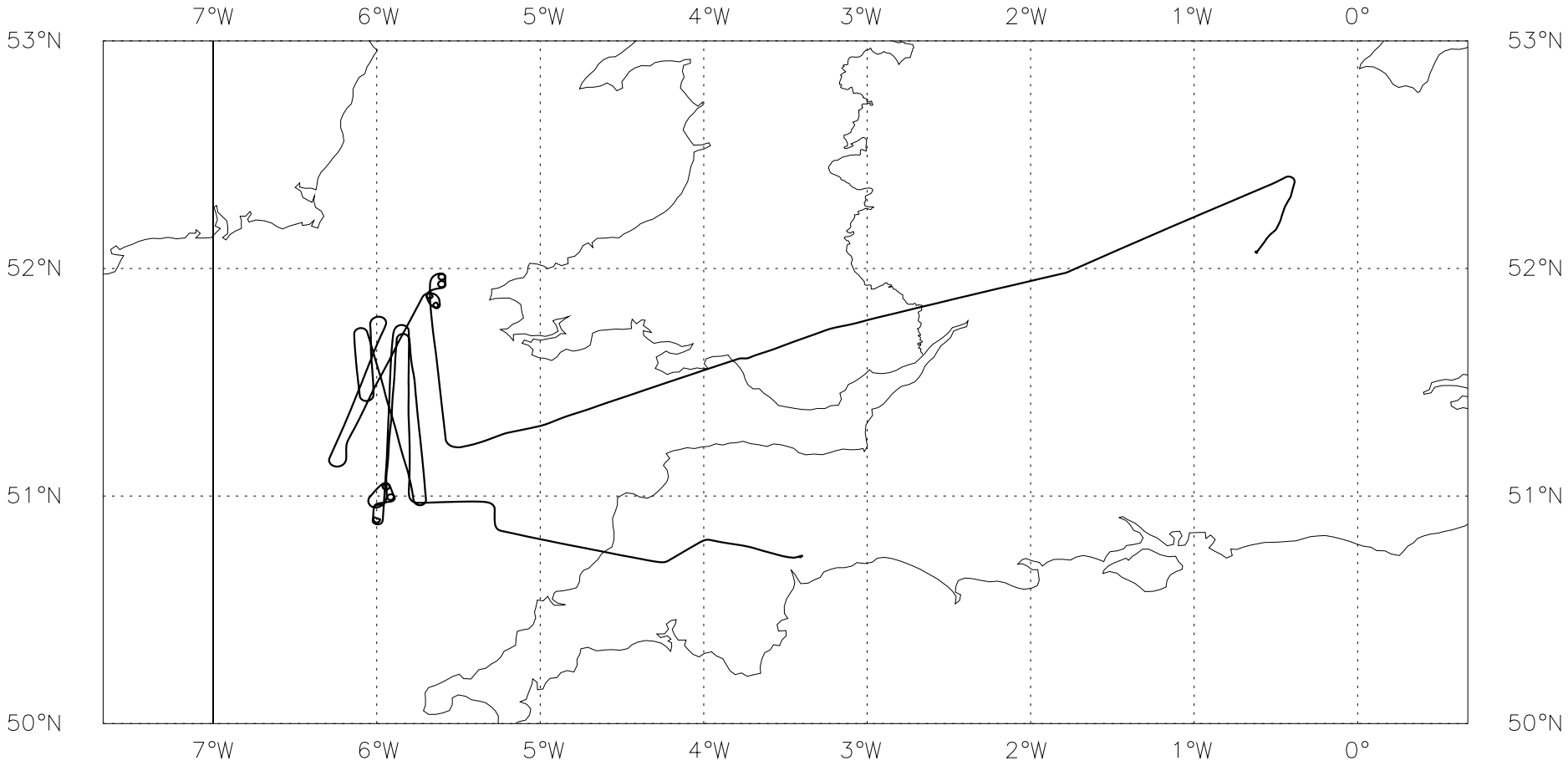
B153 Track 19-DEC-05



FAAM Sortie Brief

SWS test flying

Flight No: B153 Date: 19th December 2005

Trial objectives:
To test the Short Wave Spectrometer which essential to the DABEX campaign (Jan-Feb '06).

Location:
Suitable sea area: South West Approaches

Weather:
Clear skies at high level with stratocumulus below.
Flight pattern:

1. [1200Z] Take off from Exeter.
2. [1200] Transit out to operating area to arrive in area 1000ft above the stratocumulus cloud. [20 mins]
3. [1220] Fly two straight and level runs above the stratocumulus oriented into and down sun [20 mins]
4. [1240] Series of four orbits , at maximum bank angle. 2 orbits to be left handed, 2 orbits to be right handed.[10 mins]
5. [1250] profile to 50ft through stratocumulus, profile descent at 500ft/min through the cloud [10 mins]
6. [1300] Fly two straight and level runs at 100ft [20 mins]
7. [1320] Profile to level 1000ft above the stratocumulus at 500ft/min [10 mins]
8. [1330] Fly two straight and level runs above the stratocumulus oriented into and down sun [20 mins]
9. [1350] Series of four orbits , at maximum bank angle. 2 orbits to be left handed, 2 orbits to be right handed.[10 mins]
10. [1400] Transit back to base [40 mins]
11. [1440] Land.

- During 3 and 8, point the SWS optics at the following sequence of viewing angles. View each angle for 30 seconds:
  40 F, 40 A, 0, 20 F, 60 A, 30 A, 30 F, 10 A, 50 A, 10 F, 20 A then repeat till end of run. (F = forward, A = aft). Integration time: 150 ms for the visible module, 500 ms for the near infrared. Sampling every 500 ms.
- During 4 and 9, SWS to look at true zenith i.e. viewing forward by the aircraft pitch angle. Integration time: 150 ms for the visible module, 200 ms for the near infrared module. Sampling every 200 ms.
- During 5 and 6 point SWS forward to try and coat window with aerosol (sea salt)

Mission Scientist debrief

B153 – 19th December 2005
SWS instrument flight – SW approaches
Take off Exeter, land at Cranfield
Mission Scientist – Clare Lee

The aim of this flight was to perform more maneuvers with respect to the Sun for testing SWS stray light and calibration issues, with the mask in place to limit straylight. Some of the danger areas in the SW approaches were originally booked for military exercises, but then were made inactive on the day. Note as the aircraft was fully fuelled in anticipation of a flight on the 18th approximately 3 hours of fuel had to be burned to be able to land and refuel to maximum again. The aircraft can land heavier, but may not be fuelled over a certain weight.
The general weather was patchy StCu with clear skies above. Later in the flight some contrails from other aircraft were seen, but should not contaminate the SWS view. Note, the time difference between SWS (master flight time) and Horace (as called by flight manager) is 2 seconds.
The StCu tops were approximately 5500ft, hence runs were made at 7000ft to be clear of cloud above. The first run (1.1) was made down Sun, with reciprocal run (1.2) made into Sun. SWS performed a series of upward views at different angles. Clear skies above were observed during both runs, with possible wispy Ci lower than 30 degrees from horizontal. Two orbits to the right at 60 degrees were made, the two to the left. Small fluctuations in the bank angle could be felt. An interrupted profile descent (P1) to 50ft was made through the StCu to characterise it for when viewing nadir from above the cloud and to gather dirt on the SWS window. Two reciprocal (R2) 100ft runs were made to collect dirt and sea salt on the SWS window, followed by an interrupted profile ascent through the cloud to 7000ft. Two reciprocal runs were made (R3) at 7000ft into and down Sun, with SWS performing a series of angles. For the second half of R3.2 the StCu was relatively uniform below and nadir SWS measurements were made. Two 60 degree right hand then two left hand orbits were made. At this time low elevation contrails from other aircraft were observed. They should not effect SWS measurements though.
On the transit to Cranfield 2 drop sondes were launched for training practice. During the descent into landing contrails were observed for a short period at FL130 and engine settings noted.

Instruments status
SWS – OK
Cloud Physics – all OK, except small contamination on 2DP
MARSS/Deimos – OK, except ch16 (on for training)
CPI – OK, though no ice seen

Aircraft Scientist's Log

Flight No **B153** Date 19/12/05 Page 1 of 5

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
12:00					Take Off Exeter
					Patchy Cu, 1/8 Ci above.
12:05		7000ft.	282		Heading towards clear area
12:09:54					STc below. ~6/8 clear above.
					Will head down sun, 1st. reposition to avoid danger area.
12:17:00	R1.1	7000ft.	~~282~~	~~50.7/5.8W~~	Down Sun. ~~SAA~~ 177
			002	51.0/5.8W	wind 4ms⁻¹/135°
					T -0.6, T_D -32.9°.
					STc tops ~6000ft.
					Over strip of Cu. 3/8, No Ci above.
121928			359	51.2/5.8W	Patchy Cu below.
		7000ft.			Tephi showing v. dry at 7000ft.
					~~SAA~~ 181°
122447					Some wispy Ci ahead ~30°
	R1.end	7000ft.	*	51.7/5.8	All clear above for Stokes run.
122900	R1.2	7000ft.	184	51.6/5.9	Azimuth 181.9 (N.B. 2 degs difference between Hawa + Iwis all from nose flight operator.)
					BB Cu is very patchy below Sun viewing ↑ plus angles rather than down to view STc as planned.
123900	R1.end	7000ft	183	51.0 5.9	STc 8/8 thicker at S end of run.
124042					Speeding up for orbits.

Aircraft Scientist's Log

Flight No B153 Date 19/12/05

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
124210	01	700ft.	340	50.8/5.9	Right hand turn 60°
124317	01end.		070	50.9/6.0	
124401	02		070	50.9/6.0	Right hand. 60°
124502	02end.				
124556	03		050		Left hand. 60°
124702	03end				
124750	04		280		left hand 60°
124854	04end.				
125238	P1.	1000ft.	358		Profile descent.
125440		550ft.	004	51.1/5.9	500ft/min in decl. top>
					max drops ~ 25μm
					decl base variable ~350ft.
					patchy ~ 6/8
130105		2120	002	51.5/5.9	wind 2ms⁻¹ / 190°
					T 3.65, T_D 0.83
130333	P1st.	1000ft.		51.7/5.8W	turning right back along track.
					T 6.44, T_D 0.93
130522	P1rec.	1000ft.	178	51.6/5.8W	Recommencing profile.
					SAA 190.96°
130658	P1end	50ft.			
130708	P1st.	100ft.	172	51.5/5.7W	
					SLS pointing ~ 10° above horizontal
					Sea reasonably calm.
			175		wind 1ms⁻¹ / 282°
					T 9.47, T_D 1.97.

Aircraft Scientist's Log

Flight No B...153... Date ...19/12/05... Page 3 of 5

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
131707	R1 land	100ft.	175	50 9/5.7	Turning right for recipro @ 20ft.
					~ 3/8 lw above.
131944	R2.2	100ft.	353	51.0/5.7W	
132540		100ft.	345	51.3/5.9W	lots of birds at low level
					+ some ships.
132915	R2.2end	100ft.			End of run
" "	P2st.	100ft.	345	51.5/6.0W	Profile climb through clouds
133152	P2int.	1500ft.		51.7/6.0W	Interrupt profile.
					Land 3ms⁻¹/158°.
133319	P2	1500ft.	177	51.6/6.1	recommence profile.
133440		1900ft.			2D large water drops,
					+ raining
133501					Stopped. Patchy lw
					variable patchiness + tops +
					base alts.
133749	P2int.	3500ft.	176	51.4/6.1	Interrupt to head into another
					cloud patch.
133920	P2rec.	3500ft.	357	51.4/6.0	recommence profile
					In cloud T -2.4, T_D -1.21
					Only water drops seen.
		4600			T -3.6, T_D -2.05
134120		4700			Out of cloud top.
134143		5000ft.	356		Increase climb to 1000ft/min
134401	P2end	7000ft.	356	51.7/6.0W	
					S Aerosol angle 199.55

Aircraft Scientist's Log

Flight No B153 Date 19/12/05 Page 4 of 5

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
134600	R3.1	7000ft.	201	51.6/6.0W	Ci in dist - ahead none
					over head. (into Sun
					Stu below (N. end) ~8/8.
134958				51.4/6.0W	More patchy below ~5/8
135600	R3.1end	7000ft.			left turn.
135900	R3.2	7000ft	022	51.2/6.1W	Out of sun.
					SAA 202.60°
					Over Stu SWS looking
140326		7000ft.	026	51.5/5.9W	down. at Stu.
140604				51.6/5.8	Stu breaking
					Contrail ahead only. No Ci
					At N. end.
					Dave P. Noted some Ci contamination
					earlier.
140859	R3.2end	7000ft.		51.8/5.7	Turning right
141046	05	7000ft.	260		Right hand orbit 60°
141144	05end				Ci on horizon (<15° above), 1 contrail ~30 from it
141240	06 st.	7000ft.	020		Right hand 60°
141338	06end		~~020~~		Some turbulence at end.
141434	07	7000ft.	060		Left hand 60°, contrail dissipating
141538	07 end				new ones (v. short) from other aircraft.
141614	08	7000ft.	310		Left hand 60°
141713	08end.				some contrails (v. short), should not
					contaminate through.
					No Ci above.

Aircraft Scientist's Log

Flight No B.153..... Date ...19/12/05..... Page 5 of 5

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
					End of science.
					Training for dip sondes.
					Have RFC good views of sonde drops.
142621	S1	FL150		51.2/5.5	Sonde1 launched.
142715	S2	FL150			Sonde2 launched.
143050		FL130			~5s of contrails. on descent.
					Engine settings not changed
					N1 51.1, TGT 470→428
					N2 73.9, →72.5, FFFU 2.6
15:25					landing Cranfield
					Inst. status.
					2DP small contamination
					Cloud physics all OK.
					SWS - OK.
					MARSS - OK except ch16
					Deimos - OK.
					CPI - OK though nothing measured.

Aircraft Scientist's Log

Pollard.

Flight No **B**153 Date 19/12/5 Page 1 of 3

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
12:09:55					In operating area good sheet of
					Sc below bit patchy
					Some scatt Ci above
12:17:00	R1·1	7000ft	000		Start of run above good sheet of Sc
12:19:00					Looks clear above
					Over a clear patch
					still clear above
12:20:55					Back over Sc
					Still clear above
12:22:40					Small break(s) in Sc
					Still clear above
12:26:48					More breaks
12:26:30					More Cu than Sc at this end
12:27	R1·1	7000ft			End of run (clear above throughout)
12:28:59	R1·2	7000ft	183		Start of run.
					Clear above
					SWS looking at various angles up
					won't note breaks below on this run
12:39:00	R1·2	7000ft	143		end, was clear above throughout
					Speeding up for orbit
	01				60° bank right wing down
12:42:10	01		346		start
		7100			end } seemed clear above
12:44:03	02		070		start } throughout
12:45:	02	7400			end

Aircraft Scientist's Log

Pollard

Flight No **B**..153..... Date ...19/12/5.....

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
12:45:56	03		050		60° bank left down
12:47:		6900			end
12:47:	04		285		start 60° left
12:48:	04				end
12:52:38	P1 ↓	7000ft	357		Start of profile to surface
12:54:35		5500			@ 1000ft/min to tops
					→ reduced to 500ft/min at tops
12:55:45		4600			Main tops at 4600 ft
					Fairly thin layer of Sc w/ some
					convective bits
					2D-C - 25μm drops
13:02:40					1024 QNH
13:03:33		1000ft			Interrupt, turn on recip.
13:05:22	P1 ↓	1000ft	178		re start to 50 ft
13:08:08	P1	50ft			end
13:02:08	R2.1	100ft	175		Start Trying to get SWS working
13:16:					Clear above @ end of run
13:17:07	R2.1	100ft			end
13:19:44	R2.2	100ft	351		Start
13:21:					
13:24:00					Clear above now
13:27:29					Cloud above
13:29:15	R2.2/P2	100ft	345		End of run start of climb
13:31:52		1500ft			Interrupt
13:33:19	P2		174		resumed

Pollard

Aircraft Scientist's Log

Flight No **B**153 Date 19/12/5 Page 3 of 3

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
13:34:30					Precipitating out of cloud.
13:35:30					It's stopped.
13:36:16		2600ft			Into bases
13:37:49		FL35			Intercept
13:39:20		FL35	358		Resumed
13:41					-ve temps but no crystals
		FL47			out of tops
13:45:50	R3·1	FL70	199		} clear above
13:56:00	R3·2				End
13:59:58	R3·3	FL70	024		
					May have had a little bit of thin Ci above during that run
14:09:	R3·2				End
					Turning recip and accelerating for orbits
14:10:46	05		260		60° Right } Clear
14:11:46					End
14:12:40	06	FL70	020		60° Right } clear
14:13:38			022		End
14:14:34	07	FL70	060		60° Left } clear
14:15:38					end
14:16:18	08	FL71	310		60° Left } clear
14:17:13					end.
					Climbing to FL350 for sonde profiles

FAAM Dropsonde Flight Log

Flight No.	B153	Date	19/12/05
Page No.	1 of 1	Operator	papj

GMT	**Sonde No.**	**Event**	**Comments**
		e.g. launch, splashdown	*e.g. wind data? PTH data? Lat/Long* *NB strings of dropsonde data contain:* *time, pressure hPa, T deg C, RH %, wind direction deg, wind speed m/s, longitude, latitude, height m*
142621	1	launch	`142621.0 571.70 -15.20 5.01 315.30 6.10 -13.00 -5.59530 51.35600`
	1		Good sonde
143233	1	splashdown	`143233.0 1025.69 9.87 60.53 219.87 2.14 -11.16 -5.58186 51.36157 -65.85`
142718	2	launch	`142718.0 571.30 -15.20 4.68 313.30 5.80 -12.40 -5.58390 51.28530`
	2		Good sonde
143335	2	splashdown	`143335.4 1025.80 9.85 60.44 237.60 2.59 -10.36 -5.57122 51.29455`

CLOUD PHYSICS LOG Flight B153

Date: 19/12/05	Operator:MAP	DRS Time:11:27:00	DAU1 Time: +0	DAU2 Time:+0	DAU3 Time:+0	Aux1 Time:+0	Aux2 Time:+0	Page 1 of 1

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
12:17:00	25	0.06	5	1	1												Start Run 1.1 @ FL070
12:19:00	15	0.07		1													
12:21:00	20	0.06		1	Noise												
12:23:00	25	0.07		1													
12:25:00	25	0.07		1	Noise												
12:27:00																	End of Run 1.1
12:29:00	18	0.7		1	Noise												Start Run 1.2 @ FL070
12:31:00	22	0.06		1	Noise												
12:33:00	25	0.06		1	Noise												
12:35:00	25	0.06		1	Noise												
12:37:00	20	0.06		1	Noise												
12:39:00																	End of Run 1.2
12:41:10																	Start Orbits
12:49:03																	End of orbits
12:52:39	20	0.06		1	Noise												Start Profile 1 from FL070
12:53:43	20	0.06		1	Noise												FL060
12:55:00	20	0.07		5	Noise												FL050
12:56:48	250	0.13	29	2000	Slow												FL040
12:58:50	100	0.08		20													FL030
13:00:53	35	0.07		20													FL020
13:02:48	30	0.07		20													FL010
13:06:58	40	0.07		20													End of Profile 1 @ 50’
13:07:09																	Start Run 2.1 @ 100’
13:08:00	40	0.06		10	8												
13:10:00	45	0.06		10	6												
13:12:00	Noise			10	3												
13:14:00	Noise			20	10												
13:17:07																	End of Run 2.1
13:19:15																	Start Run 2.2 @ 100’
13:20:00	40	0.07		20	5												
13:22:00	45	0.07		20	4												
13:24:00	35	0.07		15	10												
13:26:00	40	0.07		15	11												
13:28:00	35	0.07		15	2												
13:29:15																	End of Run 2.2 & Start Profile 2
13:31:25	45	0.07		20	5												FL010
13:34:59	45	0.06	30	100	10	1	400	200	400							1	FL020
13:36:58	125	0.08		50	10												FL030
13:40:03	400	0.14	66	2000	5000	80	300	40	400							1	FL040
13:41:43	20	0.07	142		Noise												FL050
13:42:56	45	0.07		1	Noise												FL060
13:44:01																	End of Profile 2 @ FL070
13:46:00	20	0.06		1	Noise												Start Run 3.1 @ FL070
13:48:00	15	0.06		1	Noise												
13:50:00	20	0.07		1	Noise												
13:52:00	20	0.07		1	Noise												

CLOUD PHYSICS LOG Flight B153

Date: 19/12/05	Operator:MAP	DRS Time:11:27:00	DAU1 Time: +0	DAU2 Time:+0	DAU3 Time:+0	Aux1 Time:+0	Aux2 Time:+0	Page 2 of 2

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
13:54:00	15	0.06	142	1	Noise												
13:56:00																	End of Run 3.1
13:59:00	15	0.06		1													Start Run 3.2 @ FL070
14:01:00	15	0.07		1	1												
14:03:00	15	0.07		1	Noise												
14:05:00	25	0.06		1													
14:07:00	20	0.07		1													
14:09:00																	End of Run 3.2
14:10:48																	Start Orbits
14:17:20																	End of Orbits
	PCASP noisy on occasions PCASP Flowrate = 1CC/sec SID2 noisy on occasions 2D2-P noisy on occasions due to contamination of optics																

Microwave Radiometers FLIGHT LOG	Date	19/12/05	Flight	B153	log pages	2

Operator(s)	Pollard	Campaign	SWS Cal
Departure	Exeter	Arrival	Cranfield

System start

MARSS

Visual pod inspection						X
Close 3 SSP circuit breakers						X
Close all MARSS circuit breakers						X
FERA on				at time	10:08:10	
Temperature controller initial temps	Ch16	°C	Ch 17	°C	Ch18	°C
Temperature controller set points		54°C		58°C	-20	40°C
MARSS CPU on				at time	10:09:22	
Initial target temperatures	Hot	277.1		Cold	279.3	
Target heating						X
*** CHECK SCAN HEAD CLEAR ***						X
Scanning on (LMD box)				at time	10:11:12	
Scan indication		Monitor	›		Visual	X

Deimos

Close all Deimos circuit breakers						X
Turn on Deimos CPU						X
*** CHECK SCAN HEAD CLEAR ***						
Start Deimos Software				at time	10:16:52	
Initial target temperatures	Hot	275.1		Cold	273.9	
Target heating						X
Scan indication		Monitor	›		Visual	X
Weather	Cloud	1/8 Ci		Precip	No	
	Surface	3.51		Pressure		
	Other					

System functionality check

(after initial system warmup, approx 1 hour)

PC to DRS Time error	$t_{PC}=t_{DRS}$ +			at time		
Brightness temps 'sensible'						
Target temps	MARSS:	Hot	344.57	Cold	287.50	
	Deimos:	Hot	344.9	Cold	290.74	

Channel gains 'sensible'	Ch1 A (-)	Ch3 A (-)	Ch1 B (-)	Ch3 B (-)	
	43.6	28.9	41.5	27.8	
	Ch16 (40-44)	Ch17 (45-49)	Ch18 (40-44)	Ch19 (40-44)	Ch20 (44-48)
	1	34.96	35.78	37.72	40.64

Power changeover

Headset on before start			X
Listen to engine start sequence	4, 3, 2, 1.		X
LMD off (3 switches, bottom to top)			X
Exit Deimos Software (x)			X
POWER CHANGEOVER			
LMD on (3 switches, top to bottom)	then pushbutton		
Restart Deimos Software			X
System running again		at time	

Flight #	B153	Date	19/12/05	Operator(s)	Pollard	log page	2	of	2

Time	**Run id**	**Alt/FL**	*Remarks*	**Sys**
11:58:00			CH16 giving some data	
12:16:59	**1.1start**			
12:28:59	**1.2start**			
13:00ish			CH16 gone no hot counts.	

SWS FLIGHT LOG SHEET

Flight #	B153	Date	19/12/05	Operator(s)	Ian Rule	log page		of	

Time	Run id	Alt/FL	Mirr Pos	Int Times		Remarks
				Vis	NIR	
1125				200	500	Dark cal (first one suspect), box temp = 13
1138						Pc time checked = DRS, About Time prog not working…
115133						T/o Exeter
120255			Aft	150	500	Start video, count = 0:00:00
1205			aft	150	500	Dark cal, box temp = 12
121700	R1.1	FL70	Various, start on 40F	150	500	Start run, various views as described by the sortie brief. Mirror moved on whole and half minutes. Box temp = 13
122700			Finish on 50A	150	500	End run, dark cal, box temp = 12
122900	R1.2	FL70	Various, start on 40F	150	500	Start run, various views as described by the sortie brief. Mirror moved on whole and half minutes. Box temp = 12
123900			Finish on 50A	150	500	End run, dark cal
124210	O1	FL70	Zen+6F	150	200	Start orbit, RHD, 60deg (ish…), box temp = 11
124310						End orbit
124401	O2	"	"	"	"	Start orbit60 deg RHD
124502						End orbit
124556	O3	"	"	"	"	Start orbit 60deg LHD
124702						End orbit
124750	O4	"	"	"	"	Start orbit 60 deg LHD
124855						End orbit, dark cal, box temp = 12
125238	P1	FL70	90F			Pointing fwd to gather dirt…, not recording data
1257	P1			150	500	Dark cal, box temp = 13
130658		50'				End profile
130708	R2.1	100'	80F			Start run, not recording, gathering dirt on window…?
1311						System time checked = DRS
131708						End run
131915	R2.2	100'	90F			Start run, not recording, gathering dirt on window…?
132915	R2.2/ P2	100'	90F			End run, start profile, not recording, gathering dirt on window…?
134402	P2	FL70				End profile
134600	R3.1	FL70	Various, start on 40F	150	500	Start run, various views as described by the sortie brief. Mirror moved on whole and half minutes. Box temp =13
135600			Finish on 50A			End run, dark cal

SWS FLIGHT LOG SHEET

Flight #	B153	Date	19/12/05	Operator(s)	Ian Rule	log page		of	

Time	Run id	Alt/FL	Mirr Pos	Int Times		Remarks
				Vis	NIR	
135900	R3.2	FL70	Various, start on 40F	150	500	Start run, various views as described by the sortie brief. Mirror moved on whole and half minutes. Box temp =
130330			Finish on 50A			Nad view started
140900	R3.2	FL70	nad	150	500	End run, dark cal
141048	O5	FL70	Zen+6F	150	200	Start orbit, 60 deg, RHD, box temp = 12
141145						End orbit
141240	O6	"	"	"	"	Start orbit 60 deg RHD
141338						End orbit
141433	O7	"	"	"	"	Start orbit 60 deg LHD, box temp = 12
141538						End orbit
141613	O8	"	"	"	"	Start orbit 60 deg LHD
141713						End orbit, dark cal
			90A			End of science, not recording
143200						Stop tape count = 2:28:32
Approx 1525						Land Cranfield

Flight Manager's Instrument Status Log

Flight No. **B** 153 Date: 19th December 2005

Instrument	Operated	Instrument	Operated
Navigation		**Cloud Physics**	
INU	**Y**	**Probes**	
XR5M GPS	**Y**	FFSSP	**Y**
Cruciform GPS	**N**	PCASP	**Y**
Satcom C	**Y**	2D-P	**Y**
Satcom H	**Y**	2D-C	Y
Thermometers		Cloudscope	**N**
De-Iced Temp	**Y**	SID 1	**Y**
Non De-Iced	**Y**	SID 2	**Y**
Heimann	**Y**	HVPS	**N**
Hygrometers		CIP25	**N**
G. Eastern	**Y**	CIP100	**Y**
J. Williams	**Y**		
Nevzorov	**Y**		
TWC	**Y**		
FWVS	**Y**	**Racks:**	
Radiometers		INC	**N**
Upper Clear	**Y**	CCN / CPC	**N**
" Red	**Y**	CVI	**N**
" Silicon	**Y**		
" JN02	**Y**	**Aerosol**	
Lower Clear	Y	PSAP	**N**
" Red	**Y**	Nephelometer	**N**
" Silicon	**Y**	Filters	**N**
" JN02	**Y**	AMS	**N**
Large Radiometers			
TAFTS	**Y**		
MARSS	**Y**		
DEIMOS	**Y**	**Others:**	
ARIES	**Y**	NIR TDLAS	N
SWS	Y	2BT O3	N
Chemistry		VACC	N
Ozone	Y	PEROXIDE	N
SO2	Y	Formaldehyde	N
NOX	Y	ADA	N
CO	Y	CPI	Y
ORAC	N	NOxy	N
PAN	N	PTRMS	N
PERCA	N	Bag Sampling	N
WAS	N	Tube Sampling	N

Faults / Incidents Log

Flight No. B153
Date: 19th December 2005

Instruments

1. SID 1 – working
2. PCASP – noisy at times
3. 2D-P noisy at high level, some contamination after t/o
4. 2D-C noisy at high level
5. FSSSP ok
6. SID 2 working, some noise
7. TAFTS not operated
8. ARIES not operated
9. SWS working ok
10. MARSS ok, no channel 16
11. DEIMOS ok
12. CPI working
13. JW zero pot is set to nearly full scale (fully clock), zero now stuck off scale (-ve)
14. INU refused to come out of 'standby' – rebooted ok
15. FM pc froze about 14:10, rebooted

Aircraft

Nil

Satcom H Calls

Nil

MISSING LOG SHEETS:

The following log sheets are not available for flight B153:

Log	Reason
Cloud Physics Processing	
Core Chemistry	pre flight only, unmanned operation on auto calibrate so no In Flight log
CPI	Log only of interest to instrument operator so no copy left with FAAM

VIDEO RECORDINGS:

2 x ????ward Facing Cameras
2 x ????ward Facing Cameras

Digital8 video recordings from this flight reside with :

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